

# GP Batteries

## Material Safety Data Sheet for Lithium coin cell

Document Number: MCRA100

Revision: 26

Page 1 of 5

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is only provided as technical information and is referred normal use of the product in question. Peak Power makes no warranty expressed or implied.

### Section 1- Identification

Manufacturer's Name GPI International Ltd.	Emergency Telephone Number
Address ( Number, Street, City State, and ZIP Code) 7/F, Building 16W, 16 Science Park West Avenue Hong Kong Science Park, New Territories, Hong Kong	Telephone Number for information 852-2484-3333
	Date of prepared and revision Jan 1, 2017
	Signature of Prepare (optional)

### Section 2 – Hazards Identification

This contains lithium, organic solvent, and other combustible materials. For this reason, improper handling of the battery could lead to distortion, leakage\*, overheating, explosion, or fire and cause human injury or equipment trouble. Please strictly observe safety instructions.

(\*leakage is defined as an unintended escape of liquid from a battery)

### Section 3 – Composition/Information On Ingredients

Hazardous Components:

Description:	CAS Number	Approximate % of total weight
Lithium or Lithium Alloy	7439-93-2	1 to 5
Manganese Dioxide	1313-13-9	15 to 40
Propylene Carbonate	108-32-7	2 to 6
1,2-Dimethoxyethane	110-71-4	1 to 5
Lithium Perchlorate	7791-03-9	0 to 1.5
Graphite	7782-42-5	1 to 4

\*) Lithium content for each cell

Model	Li content(g)	Model	Li content(g)
CR927	0.009	CR2016	0.023
CR1025	0.010	CR2025	0.048
CR1216	0.0068	CR2032	0.065
CR1220	0.011	CR2354	0.145
CR1616	0.014	CR2430	0.090
CR1620	0.020	CR2450	0.162
CR1632	0.038	CR2477	0.298

### Section 4 – First Aid Measures

None unless internal materials exposure. If contents are leaked out, observe following instructions

Inhalation	Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.
Skin	Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

# GP Batteries

## Material Safety Data Sheet for Lithium coin cell

Document Number: MCRA100

Revision: 26

Page 2 of 5

### Section 5 – Fire-Fighting Measures

Extinguishing Media	Extinguisher of alkaline metal fire is effective.  Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that lots of lithium batteries are burning in a confined space, use a smothering agent.
Fire fighting procedure	Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

### Section 6 – Accidental Release Measures

#### Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

### Section 7 – Handling and Storage

#### Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

The cells and batteries shall not be stored in high temperature ,the maximum temperature allowed is 60°C for a short period during the shipment , Otherwise the cells maybe leakage and can result in shortened service life..

### Section 8– Exposure Controls / Person Protection

Occupational Exposure Limits:	LTEP	STEP	
	N.A.	N.A.	
Respiratory Protection (Specify Type)	N.A.		
Ventilation	Local Exhausts	Special	N.A.
	Mechanical (General)	Other	N.A.
Protective Gloves	N.A.	Eye Protection	N.A.
Other Protective Clothing or Equipment	N.A.		
Work / Hygienic Practices	N.A.		

### Section 9 - Physical / Chemical Properties

Boiling Point	N.A.	Specific Gravity (H <sub>2</sub> O=1)	N.A.
Vapor Pressure (mm Hg)	N.A.	Melting Point	N.A.

# GP Batteries

## Material Safety Data Sheet for Lithium coin cell

Document Number: MCRA100

Revision: 26

Page 3 of 5

Vapor Density (AIR=1) N.A.	Evaporation Rate (Butyl Acetate) N.A.
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Solubility in Water N.A.
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Appearance and Odor Coin Shape, odorless
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### Section 10 – Stability and Reactivity

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

### Section 11 – Toxicological Information

Route(s) of Entry	Inhalation?	N.A.	Skin?	N.A.	Ingestion?	N.A.
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Health Hazard (Acute and Chronic) / Toxicological information

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns.

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

### Section 12 – Ecological Information

N.A.

### Section 13 – Disposal Considerations

Dispose of batteries according to government regulations.

### Section 14 – Transportation Information

# GP Batteries

## ***Material Safety Data Sheet for Lithium coin cell***

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Document Number: MCRA100

Revision: 26

Page 4 of 5

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All PD lithium coin cell (Lithium Metal Battery) shown in this MSDS comply to the necessary requirements under the UN Recommendations on the Transport of Dangerous Goods Model Regulations and UN Manual of Tests and Criteria as referenced in the following transportation regulations:

1. UN Recommendation on the Transport of Dangerous Goods Model Regulations
2. U.S. Department of Transportation hazardous materials regulations (HMR)
3. International Civil Aviation Organization (ICAO) Technical Instruction,
4. International Air Transport Association (IATA) Dangerous Goods Regulations, Partially Regulated DG section II of PI 968 and
5. International Maritime Dangerous Goods (IMDG) Code. Special Provision 188, Special Provision 230 & Special Provision 903

PD lithium batteries are exempted from these regulations since they meet all UN Testing requirements and not exceed 1g lithium equivalent for single cell and 2 g lithium equivalent for battery. (UN3090) Non-dangerous Goods.

All PD lithium batteries (Lithium Metal Battery) packaging complies with Partially regulated DG section II of PI 968.

# GP Batteries

## Material Safety Data Sheet for Lithium coin cell

Document Number: MCRA100

Revision: 26

Page 5 of 5

UN No.	Shipping modes	Regulations	Packing instructions	Limit of Aggregated lithium content	Classification	Lithium handling label	Class 9 DG label
UN3090	USA	US Department of Transportation of Hazardous Substances (HMR) 49 CFR § 173.185		1 g (cell)/2 g (battery)	Non-dangerous goods	Needed	Not necessary
	Air	ICAO/IATA DGR 58 <sup>th</sup> edition	PI 968 Section IB	<=0.3 g, 0.3-1 g (cell); <=0.3 g, 0.3-2 g (battery) (that exceed allowance in Section II)	Dangerous goods, Class 9	Needed	Not necessary
			PI 968 Section II	<=0.3 g, 0.3-1 g (cell) <=0.3 g, 0.3-2 g (battery) (Only allow one package prepared per consignment)	Partially-regulated dangerous goods	Needed	Not necessary
	Sea	IMO/IMDG Code 35-10	P903	1 g (cell)/2 g (battery)	Non-dangerous goods	Needed	Not necessary
	Road/Rail	ADR / RID	P903 P903a P903b	1 g (cell)/2 g (battery)	Non-dangerous goods	Needed	Not necessary

### Section 15 – Regulatory Information

Special requirement be according to the local regulatory.

### Section 16 – Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.

### Section 17 – Measures for fire extinction

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.